PromptChainer: Chaining Large Language Model Prompts through Visual Programming

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Abstract

While LLMs have made it possible to rapidly prototype new ML functionalities, many real-world applications involve complex tasks that cannot be easily handled via a single run of an LLM. Recent work has found that chaining multiple LLM runs together (with the output of one step being the input to the next) can help users accomplish these more complex tasks, and in a way that is perceived to be more transparent and controllable. However, it remains unknown what users need when authoring their own LLM chains – a key step to lowering the barriers for non-AI-experts to prototype AI-infused applications. In this work, we explore the LLM chain authoring process. We find from pilot studies that users need support transforming data between steps of a chain, as well as debugging the chain at multiple granularities. To address these needs, we designed PromptChainer, an interactive interface for visually programming chains. Through case studies with four designers and developers, we show that PromptChainer supports building prototypes for a range of applications, and conclude with open questions on scaling chains to even more complex tasks, as well as supporting low-fi chain prototyping.